Women's Studies Int. Forum, Vol. 15, No. 2, pp. 173–185, 1992
Printed in the USA.

0277-5395/92 $5.00 + .00

DIRTY LINEN

Women, Class, and Washing Machines, 1920s–1960s

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Synopsis—The introduction of various household technologies into the home, in particular, the automatic washing machine, has the potential to alleviate some of the drudgery of the traditional washday. This paper examines the experiences of working-class women in Britain from the 1920s and compares them with their sisters in the US to see what have been the important technical and social changes relevant to getting the washing done at home. Apart from clarifying what some of the changes were and when they occurred, the aim is to demonstrate the importance of detailed examinations of women's daily lives to an understanding of technology and women's relationships with it.

The dreadful drudgery of slaving over the wash tub, the hated routines of Blue Monday, the backbreaking work done by women attempting to provide clean clothing and linen in the early years of this century are well known and well documented (for example, see Chamberlain, 1989; Schwartz Cowan, 1983; Davidson, 1982; Noakes, 1975; 1980, Oakley, 1976; Roberts, 1984; Spring Rice, 1939; Strasser, 1982; Willmott, 1979). But technology to the rescue! With the advent of the automatic washing machine all this changed, indeed washing became 'child's play,' according to at least one advertisement (Sparke, 1987, p. 12)—and there have been countless others with a similar message. Women—with whom the responsibility for doing the laundry has traditionally resided—were freed from the arduous work of the wash tub, and the family could have clean clothing virtually at the touch of a button. So the story goes.

But, of course, the story, or rather, the history, of household technology has not been so simple, at least in Britain.[1] In 1969, only 5% of all British households had an automatic washing machine, although this 'new technology' had first appeared more than 30 years before. Automatic washers very similar in function and appearance to those sold today, had been manufactured since the 1930s (Electrical Review, 1937, p. 734) and they were widely used by American women from the early 1940s (see Schwartz Cowan, 1983; Strasser, 1982). So why not by British women?

Much of the research on the history of domestic technologies comes from the United States, and, not surprisingly, it is mostly concerned with the situation there. Comprehensive feminist histories of domestic technologies in Britain have yet to be undertaken, although there has been an exciting expansion of research in this area in the last 10 years. In this paper, I take a closer look at the introduction, in working-class homes, of some specific technologies related to domestic laundry[2] in an attempt to clarify some of the factors which are particular to Britain[3] and to suggest some of the reasons for the differences between British and American women's washday work in the period between 1920 and 1980. I focus on my interviews[4] with working-class women[5] in Brighton, (a substantial sized seaside town in the south of England), drawing on their memories from the 1920s onwards, to demonstrate that a range of social, economic, and political factors affect when, where, and how a particular technology is used and by whom.

It is also my intention to demonstrate the importance of women's experiences for historical investigations of technology and social change. In my view it is crucial to take

An earlier version of this paper was given at 1990 British Sociological Association Annual Conference, University of Surrey, March 25–27.

into account the ordinary, everyday details of women's lives if we hope to develop an understanding of technology and the range of women's relationships with it. Nowhere is this more important than within the household, the site of so much of women's work and daily life experiences.

WASHING AT HOME IN THE INTERWAR YEARS

There are two basic requirements necessary for doing the laundry: an abundant supply both of water and of energy. The energy required has always, until quite recently, almost all been supplied by women, who have had the major responsibility in Britain, as in most societies, for housework, including providing clean clothing, bedding, and other household linens. As for water, although the Headington Quarry laundresses continued to use water from their village streams to wash for the Oxford dons until "well into the 20th century" (Malcolmson, 1986, p. 130), by the turn of the century a source of piped water was essential for most British households, especially those in urban areas.

By the 1890s, most English towns and cities provided their residents with a constant supply of hygenic water. This was, however, not a guarantee that all homes had their own supply of piped water with an indoor tap. The Women's Health Enquiry Committee, for example, showed that many urban women were still obtaining water from communal taps, pumps, or standpipes, often at some distance from their homes, in the 1930s (Spring Rice, 1939, p. 47) and this is confirmed by the women I interviewed. Some women had to go up and down two or three flights of stairs to get water from the shared tap in the house and again to empty it away. Audrey (born 1926), talking about her mother, said:

> They lived at the top of the house, a high storied house, and my mother told me that when I was born it was very difficult because she had to carry all the water all the way up these flights of stairs as they had this top flat, and there was nowhere to hang any washing or anything and it was very difficult.

A government survey in 1947 found that 7% of households in Britain were still without a piped water supply. In rural areas one in every five households lacked this essential amenity (Gray, 1947, MO[6]). The lack of a rural water supply is confirmed by a group of participants in my study living in a village only a few miles from Brighton. Doris (born 1915) described her grandmother, with whom she lived as a child, collecting water from the village well by means of two pails slung onto a wooden yoke across her shoulders. She said that this practice continued and no changes were made to the facilities in her gran's cottage until her death in 1942. A recent study of rural women in a village in Yorkshire pointed out that piped water had not been installed in their cottages until 1959 (Harrison, 1987, p. 15). However, in both Britain and the United States, the circumstances of rural women were often very different from those of their urban sisters. Here I concentrate on urban women.

The 1947 survey also found that 44% of households had no piped hot water supply (Gray, 1947, MO). This figure would have been considerably higher before the extensive building of new homes on council estates throughout the 1920s and 1930s. For example, by 1939, 2500 had been built in Brighton (Farrant et al., 1981, pp. 31–32). Several of my informants mentioned the enormous changes in household tasks when they moved to a new council house with electricity and an ascot or a back boiler. Olive (born 1920) said about the house her family moved to in August 1931:

> We were thrilled with the house. Just imagine. . being able to have a bath in a special room. , to be able to turn on the tap and obtain hot water . . . The most magical thing of all was to press a switch and the electric light came on. . . My mother hired an electric boiler, cooker, kettle and iron from the Electricity Board for about 5/6 a quarter, it was all brand new and marvellous for her.

This was a scheme offered to council tenants in Brighton, with weekly demonstrations of electrical appliances in the electricity department showrooms.[7] Electric fires could also be hired under the scheme (Clinch, 1932, Blib).[8] Olive continues her description of her mother's delight in the new home and equipment:

> For years she'd had to cook over the fire and range and iron with two flat irons, which used to take ages to keep heating and go cold quickly. . . . Best of all she could do the washing without lifting heavy buckets of water or lighting a fire under the boiler.

Olive's mother was amongst the more fortunate of working-class women, it would seem. In 1949, 37% of households still had to heat their water in kettles on the stove (Wilson, 1949, MO) whilst in 1947, 4% of homes still had neither gas nor electricity (Grey, 1947, MO).

The situation in U.S. cities was rather different. Ruth Schwartz Cowan's evidence from detailed surveys of two medium-sized towns in Indiana and Ohio in the early 1920s shows the widespread usage of standard utilities, with the exception of gas. In Ohio, for example, "73.7% of houses in Zanesville were wired for electricity, 90% with running water, 60% with a bathroom, 9% with piped gas, and 69% with telephones . . . " (Cowan, 1983, pp. 182–183). Susan Strasser says that by the 1930s (the middle of the Depression), "almost everybody in large cities used the standard utilities" (Strasser, 1982, p. 264). She goes on to say that in 1935 a survey of 64 large cities used Cleveland as a typical example to show that "98% of homes had electric lights, 96% had plumbing that included a toilet, and 89% had both hot and cold running water" (Strasser, 1982, p. 264). Strasser also tells us that "Although by no means universal at the end of the 1920s electric washers had stopped being oddities, more than a quarter of the non-farm households with electricity had washers" (Strasser, 1982, p. 119).

Judging by the above figures, just less than one-quarter of all U.S. urban dwellers had electric washers in the 1920s. In corroboration of this, Cowan says: "In 1926, 80% of all affluent households that were studied by market researchers in 36 American cities had. . . . washing machines" (Cowan, 1983, p. 173). In the same year "*only* 28% of the homes in Zanesville had electric washers" (my emphasis) (Cowan, 1983, p. 173). She suggests this was because they cost between $60 and $200 (approximately a month's wage for a working man) and were therefore available only to the more affluent (Cowan, 1983, p. 185).

Compare the picture of women's domestic working conditions that these U.S. figures suggest with Britain: more than a decade later, in 1938, less than 4% of all households, rich or poor, had a washing machine of any kind at all (Corley, 1966, p. 16). Very few of these indeed would have been electric powered, both because of deficiencies in the supply of electricity which persisted into the 1950s[9] and because they simply were not being produced nor imported in any numbers (Senker, 1984, p. 2; Corley, 1966, pp. 28–32). To avoid the 20% import duties imposed in 1932, several U.S. domestic appliance manufacturers set up or expanded production facilities in Britain such as Hoover and Hotpoint (Senker, 1984, pp. 1–3; Hardyment, 1988, p. 64). Despite this "only 60,000 electric machines were being produced annually by the end of the 1930s, compared with a figure closer to two million for the United States" (Hardyment, 1988, p. 64). And some of the British-produced machines were intended for the export market (Senker, 1984, p. 2; Corley, 1966, pp. 122–123).

Those that were on sale were almost prohibitively expensive for all but the very rich. The Hotpoint BTH electric washer sold in 1935 for £25 or £35 with a roller-iron fitted under it (Hardyment, 1988, p. 63), whilst a more "modest electric washing machine, with mangle attached, sold for about £20" (Bloom, 1988, p. 10). According to Bloom, the latter amounted to six to seven weeks wages for the average wage earner (Bloom, 1988, p. 10). However, from Margery Spring Rice's evidence, a working-class man in full-time work was fortunate if he earned as much as £2 for a week's work in the mid-1930s and women were, of course, paid far less (Spring Rice, 1939).

Even manually agitated machines, which consisted of little more than a galvanised tub with a central rotating screw worked by a hand-held lever, were rather expensive for that average wage earner and out of the question for the poor, with even less disposable income. The Ewbank Master Clothes Washer, was advertised in 1937 at prices ranging from £4.7.6 for the basic washer to £7.2.6 for the "Complete Washer, Wringer and Sliding Table including porcelain finish to the agitator and washer lid." For an extra £1.7.6 it was possible to get a gas-heated model. (From

Ewbank advertising leaflet, Museum of Rural Life, Bourton on the Water, Oxfordshire).

DOMESTIC TECHNOLOGY IN THE INTERWAR YEARS

The copper or boiler and the mangle or wringer were amongst the most important items of washday technology in Britain in the 1920s, 1930s, and 1940s in households of all classes and income levels. The main differences between classes with regard to the washing was the same as it had always been: the better off had some else do the laundry for them, either in their home, or by sending it out to a washerwoman or to a commercial laundry.[10] Most working-class women managed as best they could to do it themselves[11]—and indeed they were the washerwomen for the better off.

The more fortunate working-class woman had access to a copper and a mangle either in her own home or in a communal or public washhouse. A copper was a large built-in tub, usually with a space under it to light a fire to boil the washing, otherwise it had to be filled with water heated in buckets and bowls on the stove. Freestanding gas or electric boilers could be rented from local companies, such as Olive's mother did in Brighton, but together with the cost of running them, some women, judging by the women I interviewed, thought them too expensive. Added to this was the fact that they were none too safely constructed in the 1920s and 1930s. If electric, they were prone either to burst into flames or to suffer from the damp atmosphere, and if gas, drips onto the gas ring underneath could extinguish the flames and allow gas to escape. So on the whole, most women continued to use the old-fashioned copper. Collecting old boxes and other rubbish for the copper fire was a childhood task of some of the participants in my study and others said any suitable household rubbish had to be saved for this purpose to supplement kindling or the more expensive coal.

Boiling was considered essential for getting the wash really clean and germ-free. Indeed, this was so important that some of the women I interviewed still believe things aren't properly clean without it:

> I still boil up, 'cos there's something in boiling that instils into me that it can't be clean unless its boiled. . . . just putting it in a washing machine . . to me its not clean. . . . it wasn't the amount of lather that got the things clean, it was just the boiling up of it, you know, the real boiling up. (Elsie, born 1926)

The need for boiling meant that the work had to be done in a damp steamy atmosphere, and many women recall the walls of their homes running with condensation, the unbearable heat, and the unpleasant smell of boiling wash as the most hated part of the weekly routine. Audrey (born 1926) says:

> Oh I can remember vividly coming home from school and the steam running down the walls of the kitchen and the awful smell that went all through the house.

Another Brighton woman (born 1908) commented on her mother's washday:

> With five boys and five girls, everyday was a washday, but Monday was different. It must have been the original "Day of Steam." Everywhere one looked was water in baths, bowls, copper and puddles on the concrete floor. (Noakes, 1975, p. 5)

Many of Margery Spring Rice's informants attributed their chronic rheumatism and other ailments to this damp unhealthy atmosphere (Spring Rice, 1939).

Broadly speaking for women washing at home, with variations depending on the equipment and facilities available, each batch of washing meant soaking, scrubbing, usually boiling, several rinses, perhaps bluing or starching, several wringings, often mangling, and hanging up to dry, followed later by ironing, airing, folding, and putting away.[12] There might be several separate washes to deal with the different kinds of laundry needing slightly different treatments, such as whites, coloureds, extra-dirty work clothes, and finer items made of wool, for example. Each wash involved a great deal of physical exertion, much bending and lifting, and carrying of water and the heavy wet washing. The washing had to be scrubbed, even if it was going in the copper, and stirred and agitated by hand with a special stick or *dolly* whilst in the copper. Then the heavy steaming clothes had to be hauled out of the boiling water, usually with a long pole or tongs.

After this came rinsing in buckets and basins if a sink wasn't available or was being used for another part of the process, followed by wringing either by hand or through the mangle, in either case an arduous task. Finally, everything had to be carried outside, maybe down several flights of stairs to be hung out. If the weather was wet or there was no outdoor hanging space, everything had to be dried indoors. This might take several days, especially in winter, adding further to the general discomfort and inconvenience in cramped living spaces. An investigator in a Mass Observation survey in 1939 reports that it was part of the family ideology to remove the wet washing before the man in the household came home so that "he might see the fire" and not be irritated by the continual presence of drying clothes (Interim Report, 1939, MO).

Even when the clothes were hung up to dry, the work of washday was not over. There was still the clearing away and cleaning up of the work area to be done. A Brighton woman, born 1908, recalls some of the last of the washday tasks:

> . . . The copper lid was scrubbed, also the duckboards which Mum stood on to keep her feet dry. The floor had to be scrubbed, copper heartstone and yard scrubbed down. Then the place was fit to be in. (Noakes, 1975, p. 7)

Later, probably almost all the washing would be ironed, another hot and tiring task, as most working-class women at this time possessed only heavy flat irons which had to be heated on the fire, winter and summer. Then there was airing, probably around the fire again, folding and putting away or, in the case of bed linen in particular, if there wasn't enough spare, it would need to go straight back on the beds.

If the household included a baby and/or very young children, especially if they were not yet toilet-trained, the amounts of washing were substantially increased to say the least. In the 1930s and 1940s disposable nappies were yet to appear in the shops. Nappies of terry towelling were the softest and most absorbent, but they were expensive. They were usually used with liners of various materials in an attempt to save some washing. Working-class women would probably not have been able to afford the soft absorbent varieties of nappies, using those of inferior quality instead. Many would have had no money to spare to buy nappies of any kind, and they had to make do in all manner of ways:

> The napkins, well my mum used to give me the tails of my dad's old shirts to make up into napkins. Course we used so many, see? (Violet Harris (born 1900), quoted in Chamberlain, 1989, p. 95)

Such materials would not have been very absorbent. Consequently, clothing and bedding would have been frequently saturated and required constant washing and drying-out. Mary Chamberlain points out that the lack of space and furnishings often meant that babies shared a bed with parents or siblings as soon as they grew too large for the drawer or orange box which served as a crib in poor homes. "But with no protective clothing available such sharings must have been sodden affairs for all concerned" (Chamberlain, 1989, p. 96). And they must have added considerably to the problems of washing and drying.

Some women did their washing in communal or public wash houses, usually in order to use facilities not available at home. The facilities they lacked might be as simple as sufficient space in which to work or running water close at hand. Public wash houses, which local councils were responsible for providing, sometimes had more sophisticated equipment, such as drying machines. However, a 1949 survey found that most cities and towns which provided them,—and many, including Brighton,[13] did not—only provided sufficient amenities for 3 to 5% of their population to wash once a week (Wilson, 1949, p. 21, MO). On the whole, the north of the country was better supplied with public wash houses than the south. Some still survive and are being used, for example, in Manchester, whilst the last one remaining in London was closed down in 1983, albeit amidst much local protest (Jobs for a Change, 1983, p. 3).

Communal wash houses were much more common. They were situated in, for example, a backyard, and were shared by the occupants of several neighbouring houses. Usually they supplied only basic requirements such

as water, sinks, and perhaps a copper. The sharing brought problems of its own. One woman said she had to get up three days after the birth of one of her children to do her washing as it was her turn in the washhouse and she didn't want to miss it (Lewis, 1980).

Even under good conditions the work was heavy and arduous, and for many working-class women the conditions in which they did the laundry were not at all good. The work seems to have taken most of the day to accomplish, even for a relatively small family, with various tasks like soaking and preliminary scrubbing and stain removal done the night before, and ironing the day after, not to mention mending and the need to remove buttons from garments going through the mangle and to sew them on again later.

Not surprisingly, some women remember how irritable their mothers were on wash day. Chamberlain (1989, p. 42) points out the frequency with which her informants mentioned their mother's temper and chastisements in comparison with fathers (who were not at home much and far more likely to be at leisure if they were there). Women I interviewed also often mention an irritable mother and some directly link it with washday. Daisy (born 1924) talking about her mother turning and stirring the washing in the copper with a long stick said:

> If she was in a temper she would stir it up and stir it up . . . she'd vent her feelings on the washing instead of clip me round the ear. ! . . Monday morning if she'd had a bad weekend the old washing got churned. . .

Daisy also went on to say, in common with others I interviewed, that her mother didn't complain about the washing as such, but about Daisy making her clothes dirty and giving her more work. When asked a direct question about whether their mothers complained about the hard work of washing, most of the women with whom I talked replied in the same way as Joan (born 1920):

> No no I think women accepted all that heavy work, I know I did when I first got married (1940) and there weren't washing machines and things, I think you just accepted it, that was part of women's chores and you just got on with it.

Here, another major difference between working-class women in Britain and those in the United States seems to be emerging. The acceptance, the sense of inevitability, of such poor working, and indeed living conditions seems to have persisted far longer in Britain than in the United States (MO, 1943, pp. 5, 208; Ravetz, 1989, p. 201). According to Ruth Schwartz Cowan, after World War I, working-class attitudes changed substantially in the United States. Although she does not deny that a large percentage of the population appeared to be living below a minimally decent standard (Cowan, 1983, p. 182), she argues that nonetheless this standard had risen considerably for many working class households. She says:

> The hardpressed housewife of the 1920s was not investing in luxuries. . . but when times were good, she and her husband were trying to create for themselves the standard of living to which more prosperous families had become accustomed before the First World War. (Cowan, 1983, pp. 182–183)

She then goes on to say that in Zanesville, for example, "where 70% of households earned less than $2000 (per year) 79.9% of them were owners rather than renters of their dwellings" (Cowan, 1983; pp. 182–183). Social histories of Britain in the 20th century indicate that although there were many changes in the interwar years which affected women's lives, class divisions remained largely intact, as did the privileges of the rich and the middle classes. For most people, the working-class way of life did not change substantially until after World War II (see amongst many others, Beddoe, 1989; Braybon & Summerfield, 1987; Davies, 1984; Halsey, 1981; Holdsworth, 1988; Hopkins, 1964; Marwick, 1982; Seaman, 1970; Wilson, 1980).

This is borne out with regard to washing. Women in the 1920s, 1930s, and 1940s often used the traditional skills and methods passed on from mother to daughter or from older to younger generations of neighbours, judging by accounts in MO and information from my interviews. These and other sources indicate that, until the early 1950s, relatively few changes had taken place in working-class

washing practices since late Victorian and Edwardian days. Indeed, Caroline Davidson suggests that few changes took place between 1650 and 1950 (Davidson, 1982, p. 160)! The main changes mentioned in my interviews and supported by other sources are: in the 1930s the preference for new soap flakes and powders over the hard soap favoured by earlier generations, and in the 1940s, the gradual change from mangling to using a small rubber rollered wringer—the Acme wringer so well remembered by many of the women I interviewed!

The Acme wringer is a splendid example of the dubious advantage of switching to the new technology of the time. In other words, not all new technologies are either new or necessarily better than those they are intended to supercede. The Acme could claim various improvements in comparison with the traditional old-fashioned mangle, according to some of the women in my study. It was small, so it could be more easily stored, whereas the mangle was most usually kept outside in the backyard, as it was too big and cumbersome to fit inside most kitchens or sculleries in working-class homes. However, outside it was subject to all weathers. Consequently, the wooden rollers could crack or splinter or just be generally rough on the clothes passing through them. The Acme, on the other hand, had rubber rollers, which was mentioned by each of the women who had used one as a great improvement. Acme-type wringers could also be electrically powered and women with this version said that not having to turn a handle was a help, as it left them both hands free to guide the clothes through. The mangle had two particular functions. The first was squeezing out the excess water from the rinsed clothes, which several women admitted the lighter weight Acme did not do so well, especially with regard to the larger items. The second function was smoothing out the washing which, according to my informants, the roller of the mangle did very well. Creases in both wet things of all kinds and larger items, such as sheets and tablecloths, when taken from the line almost dry could be smoothed out through the mangle, but the Acme was too small to perform this function at all. Indeed, some women indicated that it crushed and wrinkled the items going through it if they were not especially careful. So some ironing was saved with a mangle, but none at all with the Acme. It is hard to say then which was better, judging by information about their relative merits from my informants, but the Acme began to replace the old-fashioned wooden mangle. However, it was itself fairly rapidly superceded by the advent of the spin dryer in the late 1950s.[14]

If the installation of electricity and piped water and the development of soap powders and wringers were the important changes in domestic technologies experienced by most working-class women doing the washing in interwar Britain, when did modern laundering appliances make their appearance in working-class homes?

POSTWAR DEVELOPMENTS

By 1948, ownership in Britain had gone *down* to 2.7% (Table 1) due in part to the fact that few, if any, domestic washing machines were manufactured or imported during the war. In the United States however, a survey in 1941 showed that washing machine ownership (or interior access to one) had increased to 52% of families (Cowan, 1983, p. 195). Postwar production of washing machines in the United States tripled between 1939 and 1947, and automatic machines were on sale immediately after the war (Strasser, 1982, p. 267). In contrast, one of my informants tells me that demand for washing machines in Britain, stimulated by a plethora of advertisements in the late 1940s so outstripped supply that in his home town in North Kent, they were available only with a doctor's prescription. His mother, who suffered from severe arthritis, was able to obtain one, an Ada, in 1949 only with the help of her doctor to vouch for the urgency of her need. Even by 1951 Hoover was advertising:

> Because of overwhelming demand, your Hoover dealer may not be able to supply you at once. But rest assured the Hoover electric washing machine is *well worth waiting for*. It is unique, and there is nothing to compare with it. So don't delay. Place your order now. (*Picture Post*, 24th Nov. 1951, original emphasis)

So it is clear that there was an extremely different situation in the two countries in the

Table 1. Percentage of ownership of washing machines

1948	1952	1955	1956	1958	1960	1961	1966	1969	1972	1975	1978	1980	1982
2.7	8.7	17.5	19.2 (from AGB)	28.7	37.0	41.3[a]	60.1[a]	64.0	64.3[a] 67.0	71.0	72.9[a] 75.0	76.0[b] 77.0	80.0[b] 80.0

Compiled from: National Institute Economic Review, Nov. 1960; [a]Sample Survey of Domestic Consumers, HMSO, London; [b]The General Household Survey, HMSO, London, and AGB (Audits of Great Britain), London.

late 1940s and early 1950s, not least in the manufacturing base and the availability of washing machines.

World War II brought about profound social and economic changes. Stimulated perhaps in part by the glimpses of higher living standards that many working-class women and men had in the course of war service, their attitudes and expectations changed. These higher expectations coincided with the brief boom period of the economy in the late 1940s and the 1950s, and often focused on the home. Manufacturers and importers of domestic appliances were not slow to recognise the demand for consumer goods in the New Look postwar Britain (Hopkins, 1964; Corley, 1966; Senker, 1984; Zmroczek, 1984, pp. 22–23; Zmroczek, in progress), although at first shortages of materials and labour inhibited mass production (Senker, 1984, p. 6) as we have seen with washing machines.

Hire purchase controls on appliances, introduced in 1951 by the government to divert production towards much needed export markets (Senker, 1984, p. 6), considerably hampered sales of washing machines until they were removed in 1958. Working-class people were likely to be especially affected by these controls, as their incomes did not usually allow them to make large purchases outright, although judging by my informants many were willing to save up or pay the extra for hire purchase in order to have one. Others avoided the extra cost by buying second-hand when possible. The controls on hire purchases were removed for a short period of seven months in 1954, possibly accounting for the sharp rise in washing machine deliveries in that year. The numbers were almost triple those of 1952 and confirmed the demand, to which manufacturers were beginning to respond (Zmroczek, 1984, p. 22; Zmroczek, in progress).

By 1956, almost 20% of households in Britain owned a washing machine of some kind, by 1961 this figure had doubled to 41%, and by 1966 tripled to 60% (see Table 1). It is not easy to ascertain from the figures available the proportion of working-class homes in these statistics. Corley (1966, p. 16) shows that in 1948, of households wired for electricity only, 2% of those in social classes D and E owned a washing machine of some sort, and that by 1963 this figure had risen to 36%.

Several manufacturers of domestic appliances noting the demand for washing machines in the early 1950s decided to concentrate on producing them. Hotpoint led the field with an emphasis on marketing. For almost the first time in the industry's history, market research was conducted to determine what the housewife (sic) wanted and the washing machine was redesigned, with an emphasis on quality – but this also meant a high price. The old round tub on legs gave way to a freestanding, box-shaped machine, and wood was no longer used in its construction. These machines, however, still strongly resembled those of the 1920s and 1930s in their functions. Someone (the ubiquitous housewife) had to be on hand to start and stop the machine as needed for filling with water, heating the water, adding the soap, agitating the wash, then hauling it out and putting it through the mangle or attached wringer before repeating most of the process for rinsing. And then the task of getting it dry still remained. So the new technology at this time was in fact not particularly new, nor particularly efficient, despite a proliferation of advertisements featuring manufacturer's claims to have freed women from washday drudgery and the like. But for many women these basic washing machines were obviously preferable to having to wash by hand.

Whilst some of the women in my study told me they specifically went out to work to earn the money to purchase such a washing

machine in the mid- to late 1950s, it was frequently a second-hand model. The emphasis on quality meant that Hotpoint and other manufacturers were still geared to a middle-class budget and disregarding the needs of working class buyers with less to spend.

> Then a friend of mine said they was starting having washing machines, they were re-conditioned, but I mean the new ones were so expensive . . . but these re-conditioned ones . . . you had to put your name down. So we put our name down. And this one was a boiler with a mangle, a wringer attached to it, you just lifted the wringer off and stood it on top and just boiled it, and when you rinsed it you just wheeled it over to the sink and rinsed it. (Elsie, born 1926)

In the late 1950s, new entrepreneurs, John Bloom and A. J. Flatley in particular, led the field in attempting to cater for this potentially huge market. Flatley's machines sold at unprecentedly cheap prices but he chose to concentrate on clothes dryers, of the hot air cabinet type, and his company failed in 1962. John Bloom was a major influence in introducing washing machines into more homes than ever before. In 1958, he began importing inexpensive twin tub machines from Holland. They consisted of a washing machine and a spin dryer side by side in one casing. They still required a good deal of attention from the user, but the clothes could be lifted from the washer directly into the spinner, and they were dryer after spinning than after mangling or wringing, at least in the opinion of my informants. Bloom's twin tubs sold at approximately half the price of a similar model by Hotpoint or Hoover. They became popular immediately and he started to manufacture them in England in 1960.

His success was due not only to the cheapness of his products but to his sales methods. His heavy advertising campaigns in the press included coupons to fill in to get salespersons to call at one's home. They usually brought with them and installed a machine for a demonstration. A compelling sales pitch it would seem:

> I wrote in . . . they called round and demonstrated it. They brought one. I don't think they had reckoned with a top floor flat but . . . (laughter). They had to bring it up all these stairs, no lift. But they were glad they did when they made a sale. I'd have felt terrible if I'd had to ask them to take it all the way down again! (Mary, born 1921)

Hoover and Hotpoint did not miss the lesson of Bloom's success and soon introduced cheaper washing machines themselves, which eventually dominated the market.

The next major change was the automatic machines introduced by Hotpoint in 1960 and Hoover in 1962, and soon followed by other manufacturers and importers although prices for these machines were relatively high until the 1970s. Nonautomatic machines, especially twin tubs, did remain extremely popular, perhaps because they were affordable on a lower income, and even by 1980 together with the few remaining single tub machines they still accounted for one-third of the machines owned in Britain (see Table 2). The decline in popularity of laundry services, the rise of the launderette which allowed women to sample the joys of an automatic washing machine for themselves, a rising standard of living in the 1950s and early 1960s, and the increase in the manufacture and marketing of domestic appliances, combined to encourage more and more working-class women to acquire washing machines to ease the drudgery of getting the laundry done.

In 1969, a total of 64% of households in Britain owned a washing machine, but only 5% of these were automatics, whilst Strasser is able to remark of the United States that "during the 1950s and 1960s, the automatic washer and clothes dryer returned almost all laundry to the home" (Strasser, 1982, p. 270). It was not until 1981 that even 80% of households in Britain had washing machines and of these only 40% were automatic (see Table 2). Market researchers consider the market to be almost saturated, that is, although the aim is to continue to sell new washing machines they expect these will be bought to replace older models and they suggest that the one in five households who do not have a washing machine are composed largely of those not likely to acquire one: single people living in accommodation too small to include a washing machine, old people and others too poor to acquire one, and those with rela-

Table 2. Ownership of washing machines by type based on 2 million households in Britain

	1969	1972	1975	1976	1977	1978	1979	1980	1981
Washing machines (total)	64%	67%	71%	73%	74%	75%	75%	77%	80%
Fully automatic	5%	11%	21%	24%	27%	32%	34%	39%	40%
Twin tub & single tub	56%	56%	50%	49%	47%	43%	41%	38%	36%

Source: AGB (Audits of Great Britain).

tively little washing to do and/or those habituated to handwashing (Senker, 1984, p. 6; Zmroczek, 1984, p. 24; Read, 1982). Whilst all these categories will include working-class people, particularly amongst those too poor to purchase a washing machine, they are certainly not restricted to one class.

And clothes dryers in Britain? By 1980 less than 20% of households owned a tumble dryer (see Table 3) but this is another story in itself, reflecting some of the same varied aspects of the history of technology and social change as those which have emerged from this brief account of the introduction of the washing machine into British homes.

CONCLUSION

Overall, it would seem that for most British women washing at home, there was not a great deal of change from very basic washing methods until the 1950s, whereas changes began to occur earlier in the United States, particularly those making it possible (not to mention desirable) to acquire and use an automatic washing machine. In other words, the installation of electricity and piped water, industrial development of domestic appliances, and a rising standard of living occurred later in Britain than in the United States. Class does not appear to have been the only or even the most dominant factor in acquiring a washing machine in Britain especially in the prewar period, when only 4% of any households had one, although when more washing machines came on to the market in the mid 1950s, middle-class incomes certainly enhanced the ability to pay for them. It was rather the limited infrastructure including the slow development of domestic appliance manufacture together with a low standard of living, lack of disposable income, and the prevalence of old habits which meant that working-class women continued to slave over a hot tub long after the development of automated washing machines had relieved their U.S. sisters of at least some part of the drudgery of washday. The difference between classes in Britain lay more in the ability to pay someone else to do the work, either privately or at a commercial laundry. British women of all classes took longer to acquire new washday technologies in their kitchens and sculleries than their counterparts in the United States.

In addition to these conclusions, the point of this paper is also to demonstrate that if we want to understand women's experiences of technology, it is important to look closely enough to uncover the differences from country to country and culture to culture, even within Western capitalism. Despite the many similarities between the lives of British and U.S. women, and the greater availability

Table 3. Ownership of clothes dryers 1961–1981 based on 2 million households in Britain

	1961	1969	1972	1975	1976	1977	1978	1979	1980	1981
Clothes dryers (total)	–	9%	27%	30%	31%	32%	34%	33%	37%	37%
Spin dryers	5%	15%	29%	22%	21%	21%	20%	19%	18%	17%
Tumble dryers	–	1%	2%	5%	7%	9%	11%	14%	18%	19%
Cabinet/Rack	6%	9%	6%	4%	3%	3%	3%	2%	3%	2%

Source: AGB (Audits of Great Britain).

of U.S. research on domestic technologies, it is important not to conflate the two countries, nor indeed to generalise from any country to another. Similarly, it is very important to recognise that when a new technology is developed, it is not necessarily immediately put into use, manufactured, made available, and taken up by the public. If and when this occurs is dependent upon many factors, some of which have been pointed to in this paper. I believe that an examination of the *details* of women's lives will do much to illuminate the history of technological change and its meaning and importance in societal change.

ENDNOTES

1. Although there is ample evidence to show that the use of new domestic technologies can alleviate much of the sheer drudgery of washday, debates continue about how much time is saved, how much extra work has been added by the raised standards of hygiene and cleanliness, who benefits, and what has been lost in the way of neighbourliness, communication, control—and outside services such as laundries. Discussion of these debates is outside the scope of this paper, but for details of them and other feminist critiques of ideas of progress with regard to domestic technologies see Bose, 1979; Bereano, Bose, & Arnold, 1985; Schwartz Cowan, 1983; Kramarae, 1988; Leto, 1988; Strasser, 1982; Thomas & Zmroczek, 1985; Vanek, 1980; Wajcman, 1991; Zmroczek, 1984; Zmroczek, in progress.

2. For the purposes of this paper, *domestic laundry* is defined as washing deriving from and being dealt with within the household. I will not be discussing the use of commercial laundry services, the services of washerwomen, or the use of public wash houses in any detail in this paper.

3. In this paper many of the statistics refer to Britain, but the discussion is mainly related to England, that is, I have not as yet specifically researched the situation in Wales, Scotland, and Ireland.

4. All quotes not otherwise attributed are taken from my interviews.

5. The use of the term *working class* is fraught with difficulties, particularly when referring to women, and is far too general. It has been the subject of much debate, which I will not go into here. I am using it as a shorthand term to denote a low income, and the range of social and economic deprivations which accompany it, such as poor housing, lack of opportunities in education and employment, and frequently also hardship and ill health. The women referred to in this paper are all white. At the time of writing I had not completed my interviews with black women. For a discussion of the difficulties of locating a compatible sample of black women in Brighton, see Zmroczek (1990).

6. MO designates materials from the Mass Observation Archive at the University of Sussex, Falmer, Brighton. It contains a wealth of original materials gathered by Mass Observation from the mid-1930s, which include diaries, letters, reports, and publications, as well as a new diary project for the 1980s and 1990s. For more information, contact Dorothy Sheridan, Archivist.

7. At this time electricity supplies were the responsibility of the town or borough council.

8. Blib designates Brighton Reference Library Archives.

9. In 1926, the National Grid began the process of standardization of electricity supplies which was not completed until the enactment of the Electric Act of 1947, which brought all power stations under the same central control. Thus it was possible in 1949 for a shopkeeper to complain that he had been supplied with a stock of washing machines which he could not sell because they were AC and his shop was in a DC area (MO, 1949, 6 Shopping Box 5H). In Newcastle, voltages and frequencies were not standardized until 1960 (Hannah, 1979).

10. Surveys of commercial laundry usage both before and after World War II [see, for example, MO reports A18(1939); 2315 (1945); 3173 (1949); MO Bulletin No 51 (1954); Kemsley & Ginsburg (1949, MO)] show that some working-class women did use laundries whenever they could stretch their budget sufficiently. However, many women in fact had such poor facilities at home, perhaps only a bowl on a table and no running water or space for drying, that it may have been essential expenditure for large items such as sheets. Of my informants, a few remember their mothers using laundry services, but they were definitely from the better off section of the working classes. After World War II, more women say they used laundries themselves for large items, usually the cheaper services such as the bagwash.

11. A survey in 1942 showed that 73% of working-class women did all their washing at home (quoted in Davidson, 1982, p. 163). It isn't clear from Davidson's account what proportion of the remaining 27% were using public or communal wash houses or commercial laundries.

12. *Bluing* consists of rinsing in water to which has been added a blue substance said to produce whiter wash. *Starching* involves submerging the washed and rinsed items in a solution of water and starch to produce a degree of stiffness. *Wringing* involves squeezing as much water as possible out of the washed items, before and after rinsing, either by hand or through a mangle or wringer. *Mangling* is putting the items through the wooden rollers of a mangle, either to remove water and/or creases. Details of mangling are given on p. 437.

13. I can find no trace of a public wash house in Brighton, save for mention of "a site for a wash house if required" by the Mayor at the opening of the North Road Slipper Baths on 5th November 1870. (Murray, 1976, p. 107, Blib). None of my informants remember a public wash house in Brighton.

14. The spin dryer was available as early as the 1920s, but did not become popular until it was revived in the 1950s (Gordon, 1984; Byers, 1981). It has continued to maintain its popularity with approximately 20% of the population owning one throughout the 1960s, 1970s, and 1980s (see Table 3). In 1980, an equal percentage of the population, (18%) owned a spin dryer as owned a tumble dryer (see Table 3).

REFERENCES

Beddoe, Deirdre. (1989). *Back to home and duty: Women between the wars 1918-1939.* London: Pandora.

Bereano, Philip, Bose, Christine, & Arnold, Erik. (1985). Kitchen technology and the liberation of women from housework. In Wendy Faulkner & Erik Arnold (Eds.), *Smothered by invention: Technology in women's lives* (pp. 162–181). London: Pluto Press.

Bose, Christine. (1979). Technology and changes in the division of labor in the American home. *Women's Studies International Quarterly, 2*, 295–304.

Bloom, Stanley. (1988). *The launderette: A history*. London: Duckworth.

Braybon, Gail, & Summerfield, Penny. (1987). *Out of the cage: Women's experiences in two world wars*. London: Pandora.

Byers, Anthony. (1981). *Centenary of service: A history of electricity in the home*. London: Electricity Council.

Chamberlain, Mary. (1989). *Growing up in Lambeth*. London: Virago.

Corley, T. A. B. (1966). *Domestic electrical appliances*. London: Jonathan Cape.

Davidson, Caroline. (1982). *A woman's work is never done. A history of housework in the British Isles, 1650–1950*. London: Chatto and Windus.

Davies, Andrew. (1984). *Where did the forties go?* London: Pluto Press.

Dickens, P., & Gilbert, P. (1981). Inter-war housing policy: A study of Brighton. *Southern History, 3*, 201–231.

Farrant, Sue, et al. (1981). *The growth of Brighton and Hove 1840–1939*. Occasional Paper No. 14, University of Sussex: Centre for Continuing Education.

Gordon, Bob. (1984). *Early electrical appliances*. Aylesbury Bucks: Shire Publications.

Hall, Doris. (1985). *Growing up in Ditchling*. Brighton: Queenspark Books.

Halsey, A. H. (1981). *Change in British society*. Oxford: Oxford University Press.

Hannah, Leslie. (1979). *Electricity before nationalisation: A study of the development of the electricity supply industry in Britain to 1948*. London: Macmillan.

Hardyment, Christine. (1988). *From mangle to microwave: The mechanization of household work*. Cambridge: Polity Press.

Harrison, Mary. (1987). The significance of domestic work in the lives of two rural women 1918–1986: An oral history. Unpublished MA thesis, University of Bradford.

Holdsworth, Angela. (1988). *Out of the doll's house. The story of women in the twentieth century*. London: BBC Books.

Hopkins, Harry. (1964). *The new look: A social history of the forties and fifties in Britain*. London: Secker and Warburg.

Jobs for a Change No. 1. (1983). London: Greater London Council, Economic Policy Group.

Kramerae, Cheris. (Ed.). (1988). *Technology and women's voices: Keeping in touch*. London: Routledge.

Leto, Victoria. (1988). "Washing, it seems it's all we do": Washing technology and women's communication. In Cheris Kramerae (Ed.), *Technology and women's voices: Keeping in touch* (pp. 161–179). London: Routledge.

Lewis, Jane. (1980). Search for a real equality: Women between the wars. In Frank Glover-Smith (Ed.), *Class, culture and social change* (pp. 208–239). Sussex: Harvester Press.

Malcolmson, Patricia. (1986). *English laundresses: A social history*. Chicago: University of Illinois Press.

Marwick, Arthur. (1982). *British society since 1945*. Harmondsworth: Penguin.

Masterson, Olive. (1986). *The circle of life: A woman's life in Brighton*. Brighton: Queenspark Books.

Noakes, Daisy. (1975). *The town beehive—a young girl's lot in Brighton 1910–1934*. Brighton: Queenspark Books.

Oakley, Ann. (1976). *Woman's work, the housewife past and present*. New York: Vantage.

Ravetz, Alison. (1989). A view from the interior. In Judy Attfield & Pat Kirkham (Eds.), *A view from the interior: Feminism, women and design* (pp. 187–205). London: The Women's Press.

Read, Diana. (1982). *Fact sheet on home laundry appliances*. London: Burston Marsteller.

Roberts, Elizabeth. (1984). *A woman's place: An oral history of working class women 1890–1940*. Oxford: Basil Blackwell.

Schwartz Cowan, Ruth. (1974). A case study of technological and social change: The washing machine and the working wife. In Mary S. Hartmann & Lois Banner (Eds.), *Clio's consciousness raised: New perspectives on the history of women* (pp. 245–253). London: Harper and Row.

Schwartz Cowan, Ruth. (1979). The "industrial revolution" in the home: Household technology and social change in the 20th century. In Martha Moore Trescott (Ed.), *Dynamos and virgins revisited; women and the history of technology* (pp. 205–232). Scarecrow Press.

Schwartz Cowan, Ruth. (1983). *More work for mother: The ironies of household technology from the open hearth to the microwave*. New York: Basic Books.

Schwartz Cowan, Ruth. (1987). Women's work, housework and history: The historical roots of inequality. In Naomi Gerstel & Harriet Engel Gross (Eds.), *Families and work* (pp. 164–177). Philadelphia: Temple University Press.

Seaman, L. C. B. (1970). *Life in Britain between the Wars*. London: Batsford.

Senker, Peter. (1984). *Strategy, technology and skills: A report on the UK home laundry appliances industry*. Occasional Paper No. 12. Watford: Engineering Industry Training Board.

Sparke, Penny. (1987). *Electrical appliances*. London: Unwin Hyman.

Spring Rice, Margery. (1939/1981). *Working class wives, their health and conditions*. London: Pelican. (Reprinted by Virago.)

Strasser, Susan. (1982). *Never done: A history of American housework*. New York: Pantheon Books.

Thomas, Graham, & Zmroczek, Christine. (1985). Household technology: The 'liberation' of women from the home? In Paul Close & Rosemary Collins (Eds.), *Family and economy in modern society*. London: Macmillan.

Vanek, Joann. (1980). Time spent in housework. In Alice Amsden (Ed.), *The economics of women and work* (pp. 82–90). Harmondsworth: Penguin.

Wajcman, Judy. (1991). *Feminism confronts technology*. London: Polity Press.

Willmott, Phyllis. (1979). *Growing up in a London village: Family life between the wars*. London: Peter Owen.

Wilson, Elizabeth. (1980). *Only halfway to paradise: Women in post-war Britain, 1945–1968*. London: Tavistock.

Zmroczek, Christine. (1984). *Women's work: Laundry in the last 50 years*. Draft paper, University of Sussex: Science Policy Research Unit.

Zmroczek, Christine. (1990). *Research Note No. 4*. Unpublished.

Zmroczek, Christine. (in progress). Women's changing experiences of housework and household technologies. PhD thesis. Institute of Education, London.

ARCHIVES

Brighton Reference Library (Blib.)

Christie, John. (1928, May 25). Brighton's electricity 1900–1920. *Municipal Journal*, supplement p. x.

Clinch, W. N. C. (1932). Brighton electricity supply: A pioneer undertaking. Recent development. *The Municipal Review, 3*, 101–103.

Clinch, W. N. C. (1937). *Report of the electrical engineer and manager upon the annual statement of accounts of the electricity undertaking for the year ending 31st March 1937*. Sussex: County Borough of Brighton.

Murray, Gordon. (1976). A newspaper history of North Road Slipper Baths, Brighton. *Baths Service, July/Aug*, 107.

Mass Observation Archive, University of Sussex (MO)

Laundry usage. (1945). Survey prepared for the Institute of British Launderers, Ltd., by the Research Dept. London Press Exchange, Ltd., Jan. 1946. MO ref 2315.

Gray, P. G. (1947). *The British Household*. Government Social Survey. Central Office of Information draft. MO ref 2497.

Kemsley, W. F. F., & Ginsburg, David. (1949, August). *Expenditure on laundries, dyeing and cleaning, mending and alterations and shoe repairing services*. The Social Survey, Consumer Expenditures Series, Central Office of Information.

Wilson, Janet C. (1949). *An inquiry into communal laundry facilities*. National Building Studies, Special Report No. 9. Her Majesty's Stationery Office.

Mass Observation. (1939). *Clothes washing, motives and methods: Interim report*. MO ref:A18.

Mass Observation. (1943). *An enquiry into people's homes*. London: Murray.

Mass Observation. (1949a). *Home washing*. MO ref 3173.

Mass Observation. (1949b). *A report on a washing machine*. Shopping Box 5-H.

Mass Observation. (1954, April/May). *Coming out in the wash*. Bulletin No. 51.

Milne Museum, Seeboard, Tonbridge, Kent

The Electrical Review, from Vol. 1 No. 1 to 1949.

Washing Machine Box: operating instructions for various machines, some of which are exhibited in the museum.